

REMARKS

This Amendment is in response to the Office Action mailed November 23, 2004. Claims 22-28, 30, and 35-39 were pending in this application. Claims 22-25, 27, and 35-38 have been cancelled, and claims 41-52 are new.

Claim 26

The invention, as now presented in claim 26, relates to a computer system in which application-specific profile elements are provided for a plurality of applications. These elements define tactile signals to be sent to a tactile actuator when interacting with the corresponding application. At least some of the application-specific profile elements are based on cells that each contain a single alphanumeric character.

The invention is advantageous in that it can provide a computer user with meaningful tactile feedback from a text-based application with a simple and inexpensive tactile pointing device. This tactile feedback can benefit the user by supplementing visual navigation, and may increase productivity, reduce errors, or both.

In the display shown in Fig. 4, for example, the user can move his or her mouse from a window that includes graphical information to a window that includes textual information. As the mouse enters the text window, the user can feel each character, supplementing the information he or she receives visually from the movement of the mouse cursor on the screen. This additional feedback can allow the user to reach an insertion point in the text more quickly or more easily, and thus enhance the enjoyment and efficiency of the tasks at hand.

As noted in the specification, these enhancements can be particularly important in detailed authoring tasks, or where there is a large amount of potentially confusing information on the screen, such as in the case of a multi-tasking operating system with several windows open (see page 3, line 28 to page 4, line 9). In drafting a patent application, for example, it is often necessary to move back and forth between drawing and text windows to insert reference characters. If each of these operations is more efficient and enjoyable, the user will be able to spend more time focusing on the substance of the project and less time on the mechanics of mouse manipulation.

Claim 26 stands rejected as obvious over Rosenberg in view of Braun. Rosenberg begins his application by pointing out that the increasing use of Computer Aided Design (CAD) systems is causing a growing need for control devices that track three-dimensional position, and he points out shortcomings of other such devices. He then proposes a three-dimensional cursor control interface that includes a stylus that the user is said to be able to easily manipulate in free space to interact with a computer. This is said to allow cursor control in three dimensions on a two-dimensional computer screen (col. 1, line 65-col. 2, line 7). One embodiment of the invention includes software and hardware to provide force feedback information from the computer to the stylus (col. 2, lines 27-29).

Braun discloses a force feedback system and architecture which are said to allow control of a force feedback device in a multi-tasking graphical host environment. Force feedback device embodiments are disclosed which provide for relative position reporting and absolute position reporting to the host computer. Also described are several force feedback sensations and structures, including enclosures, textures, and grids.

But neither Rosenberg nor Braun disclose or suggest application-specific profile elements that are based on cells that each contain a single alphanumeric character. Rosenberg instead discloses cursor control in three dimensions that appears to address a need in the area of Computer Aided Design. And Braun discloses a force feedback device for use in a multitasking environment graphical environment in which forces are associated with graphical objects such as icons, windows, and scroll bars. But neither Rosenberg nor Braun disclose anywhere the use of their systems with application-specific profile elements that are based on cells that each contain a single alphanumeric character.

Nor would the Rosenberg or Braun patents suggest the invention of claim 26 to one of ordinary skill in the art. Rosenberg's disclosure is squarely directed at three-dimensional cursor control, which does not seem necessary at all in a character-based application such as a word processor. And Braun discloses force-feedback sensations and structures for a variety of elements, such as icons, windows, or scroll bars, but fails altogether to address how single alphanumeric characters would be treated. The prior art of record therefore fails to disclose or suggest the invention of claim 26.

The Office Action argues that Braun shows mapping to a numeric value in column 9, lines 25-39, but Applicants respectfully disagree. The cited passage itself only

addresses "isotonic" and "isometric" control types. And while the passage incorporates another patent addressing force feedback, the incorporated patent shows in Fig. 10b a text window without any tactile feedback associated with the individual characters. If it teaches anything about this aspect of the invention, therefore, the incorporation of this patent only teaches away from the invention as it is now presented in claim 26.

Claim 39 has been amended to correct a minor typographical error and distinguishes over the prior art of record for at least reasons similar to those advanced in support of claim 26.

Claim 28

The invention, as now presented in newly amended claim 28, relates to a computer system in which application-specific profile elements are provided for a plurality of applications. These elements define tactile signals to be sent to a tactile actuator when interacting with the corresponding application. At least some of the application-specific profile elements correspond to classes of the applications supported by the computer system.

A computer system that supports classes can allow users to configure several different applications to behave in similar ways. All text-based windows, for example, can be made to behave in the same way. When moving from a word processing window to an e-mail message in a multitasking system, therefore, the user's experience with textual elements can be made to be uniform.

Rosenberg and Braun do not disclose or suggest the use of application-specific profile elements that correspond to classes of applications supported by the computer system as now required by amended claim 28. Rosenberg does not really address the problem of different applications at all. And while Braun discloses force-feedback sensations and structures for a variety of elements, nowhere does he disclose or suggest the idea of supporting different classes of applications. The prior art of record therefore fails altogether to suggest the invention as now claimed in amended claim 28. New claim 50 also distinguishes over the prior art of record for at least reasons similar to those advanced in support of claim 28.

Claim 44

Claim 44 is new and its examination is respectfully requested. This claim relates to a computer system in which application-specific profile elements are provided for a plurality of applications. These elements define tactile signals to be sent to a tactile actuator when interacting with the corresponding application. At least some of the application-specific profile elements are derived by a driver as the computer operates.

This aspect of the invention is advantageous in that it can allow programs that are not specifically designed to provide tactile feedback, such industry-specific, legacy, or custom-developed applications, to provide at least some level of tactile feedback. The system can scan a program's windows, for example, for features to which it can map tactile commands (see claim 46). It can also apply tests, such as simplified statistical texts, to information displayed or to be displayed on the screen to detect graphics or text (see claims 47-48). These approaches can bring the benefits of tactile feedback into applications that are not specifically designed for it. And enabling tactile feedback in more of the applications in a multi-windowed system will provide a more unified user experience overall.

The remaining claims are allowable over the prior art of record for at least the reason that they depend on an allowable claim. This application should now be in condition for allowance and such action is respectfully requested. Should further questions arise concerning this application, the Examiner is invited to call Applicant Kristofer E. Elbing at the number listed below. The Commissioner is hereby authorized to charge any additional fees that may be required, or credit any overpayment, to Deposit Account No. 50-0750.

Respectfully submitted,

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Dated

Kristofer E. Elbing
Kristofer E. Elbing
Jonathan T. Foote
Telephone: (508) 358-2590
Facsimile: (508) 358-0714